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(54) Title: **DROSOPHILA G PROTEIN COUPLED RECEPTORS, NUCLEIC ACIDS, AND METHODS RELATED TO THE SAME**

(57) **Abstract:** The present invention provides *Drosophila melanogaster* GPCR (DmGPCR) polypeptides and polynucleotides which identify and encode such a DmGPCR. In addition, the invention provides expression vectors, host cells, and methods for its production. The invention also provides methods for the identification of homologues in other species and of DmGPCR agonists/antagonists useful as potential insecticides. The invention further provides methods for binding a DmGPCR, methods for identifying modulators of DmGPCR expression and activity, methods for controlling a population of insects with a DmGPCR antibody, a DmGPCR antisense polynucleotide, a DmGPCR binding partner or modulator, and methods of preventing or treating a disease or condition associated with an ectoparasite. Specifically, this invention discloses the matching of the orphan *Drosophila* short neuropeptide F receptor with its cognate peptide ligands.

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